

# SYPHILITIC CHANCRE COMPLICATED BY FUSOSPIROCHAETAL INFECTION FROM THE SAME PARTNER\* DEVELOPMENT OF NECROTIZING ULCER PERFORATING THE PREPUCE

BY

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Although gangrenous syphilitic chancres complicated by secondary infection with different microorganisms are not unusual, perforation of the anterior wall of the preputial sac is an exceptional phenomenon. Between the years 1958–1968, four such cases observed in the Kraków Dermatological Clinic all showed a mixed infection with *Treponema pallidum* and fusospirochaetosis. The first three patients were infected by unknown persons and only in the fourth case, the subject of the present report, was it possible to examine the sexual partner, who was shown to be the source of both infections.

## Case Report

**A man aged 39** with no history of previous venereal disease had sexual intercourse on several occasions with an unmarried woman aged 21, beginning on May 3, 1968.

On May 10 a swelling of the prepuce appeared and a paraphimosis developed which was then reduced at the surgical clinic. On May 22 the anterior wall of the prepuce perforated but the patient delayed returning to the clinic until July 3.

**Examination** There was a swelling of the penile skin and erythrocyanotic discoloration of the phimotic prepuce: on the anterior surface there was a large perforating ulcer characterized by sharply demarcated margins forming a window, with the glans penis partly herniated, through which the patient urinated (Fig. 1). On pressing the preputial sac, a profuse foetid purulent discharge flowed out. The inguinal lymph nodes were bilaterally enlarged and painless. The body temperature was 99.3°F. (37.4°C.).

**Laboratory Investigations** Darkfield examination of serum obtained from the carefully cleaned margins of the perforating ulcer showed scanty typical *T. pallidum*, and also many rapidly motile treponemes of a different type; these latter were especially abundant in the discharge from the preputial sac. In smears from these

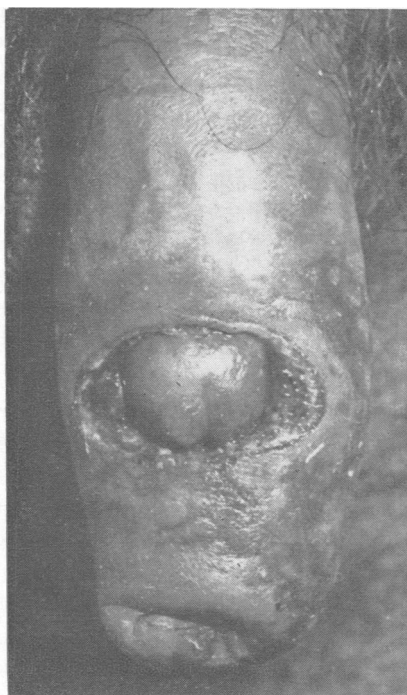


FIG. 1 Syphilitic chancre complicated by fusospirochaetal infection, with perforation of the prepuce.

areas stained by Gram's method and the prolonged Giemsa method, the typical picture of fusospirochaetosis was evident, namely Gram-negative or Gram-variable straight or slightly curved fusiform bacilli with pointed ends, mixed with treponemes, which in comparison with living organisms showed looser spirals in regular or irregular undulations (Fig. 2, overleaf) corresponding morphologically to *Borrelia vincentii*. There was also an abundant mixed bacterial flora; *Enterococcus*, *Staphylococcus albus*, and *Proteus vulgaris* were isolated on culture.

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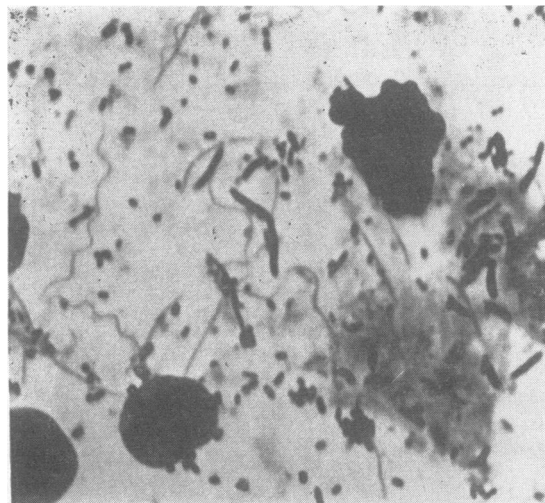


FIG. 2 Fusospirochaetal infection (and other bacterial flora) complicating a syphilitic chancre. Smear preparation stained with prolonged Giemsa method.  $\times 2,000$ .

**Serological Tests** There was a strongly positive Wassermann reaction; the VDRL was reactive at a titre of 1:64; the FTA-200 was reactive at a titre of 1:4000; the TPI test was positive: 100 per cent. immobilization.

**Lumbar puncture:** CSF cell count 2 per cu. mm., protein 26 mg. per cent.; Pandey and Nonne-Apelt tests weakly positive; WR and VDRL negative; FTA-200 test doubtful; FTA-ABS negative.

**Diagnosis** The final diagnosis was sero-positive primary syphilis, manifested clinically by a chancre complicated by fusospirochaetosis causing perforation of the anterior wall of the prepuce.

**The Female Partner** An unmarried woman aged 21 was admitted to the Clinic on July 10, 1968. She had had numerous sexual exposures with different mostly unknown partners. She was well built and normally nourished, with a normal body temperature. On the left labium majus were partially healed but still recognizable condylomata lata. The inguinal lymph nodes were not enlarged. There was a profuse vaginal discharge.

**Laboratory Investigations** Darkfield examinations of the serum obtained by scraping the condylomata revealed a few typical *T. pallida*. Examination of the vaginal discharge by darkfield microscopy revealed numerous rapidly motile treponemes, morphologically akin to *Borrelia vincentii*. In smear preparations stained with Gram's method or the prolonged Giemsa method, there were masses of monomorphous treponemes, showing undulations and even, regular, paler and darker segments of their bodies. The characteristically curved fusiform bacilli were also abundant (Fig. 3). The intensity of this fusospirochaetal infection was greater than that in the male partner. Bacteria were less abun-

dant compared with those from the preputial sac of the male partner, but *Streptococcus pyogenes*, *Staphylococcus aureus* and *albus*, *E. coli*, and *Corynebacterium pseudodiphtheriae* were cultured. Additionally there were scanty elements of *Candida albicans*.

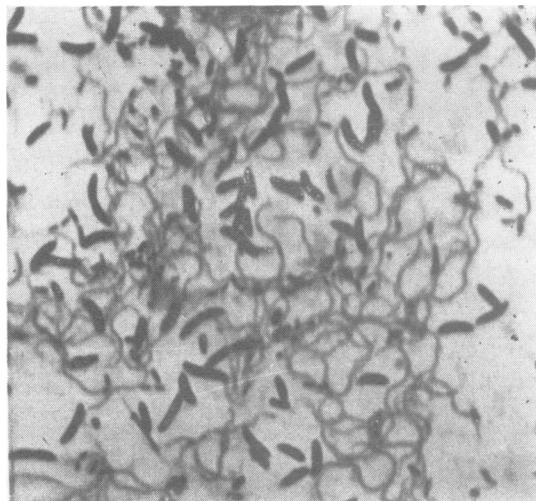


FIG. 3 Fusospirochaetosis in the female partner with secondary recurrent syphilis. Vaginal smear stained with prolonged Giemsa method.  $\times 2,000$ .

**Serological Tests** Wassermann reaction strongly positive; VDRL positive at 1:32 dilution; TPI test 100 per cent. immobilization; FTA-200 test reactive to 1 to 12,000 dilution.

**Lumbar puncture:** CSF cell count 9 per cu. mm., protein 52 mg. per cent.; Pandey tests weakly positive; WR and VDRL tests negative.

**Diagnosis** Secondary recurrent syphilis was diagnosed.

### Treatment and Course of Illness

(1) **In the male patient** After a first injection of 300,000 units procaine penicillin there was a severe Herxheimer reaction with fever of 104°F. (40°C.) and temporarily increased swelling of the penis. Thereafter the patient was given daily injections of 600,000 u. for 22 days, followed by 900,000 u. daily for 8 days, a total dose of 20,700,000 units procaine penicillin. During this course of therapy the penile swelling diminished remarkably and the margins of the ulcer healed, but the perforation persisted. Penicillin treatment had no influence on the fusospirochaetal infection of the preputial sac, but this later yielded to irrigations with a solution of Rivanol 1:1000. Immediately after the penicillin therapy the results of serological tests showed no

significant changes. The patient was referred to the Urological Clinic for circumcision but the further course of his illness is unknown because he ceased to come for follow-up examination despite repeated requests.

(2) **In the female partner** After the first injection of 600,000 u. procaine penicillin the temperature rose to 99.8°F. (37.7°C.). The patient thereafter received the same dose daily and on the 10th day resorption of the condylomata was noted. On the 20th day the fusospirochaetosis had disappeared completely from the vaginal discharge but the intensity of bacterial infection of the vaginal wall had increased. The patient, having received 13,200,000 u. procaine penicillin, left the Clinic intending to complete her treatment in one of the city's outpatient departments. Serological examination on December 4, 1968, gave the following results: WR—negative; VDRL—positive at 1:4 dilution; TPI test 100 per cent immobilization; FTA-200 test reactive to 1:1300 dilution.

### Discussion

The cases reported above further illustrate the problem of pathogenicity of fusospirochaetal organisms. Despite their frequent presence in various necrotizing lesions of the genitalia and oral mucosa, opinions concerning their pathogenicity are far from unanimous. Among the many authors who have studied this problem, Rosebury (1962) and Frobisher (1962) considered the organisms to be harmless. Scherber (1927) emphasized their definite pathogenicity and Callomon and Wilson (1956) expressed the opinion that 'the symbiotic activity of these two organisms is responsible for various gangrenous processes' in the mouth and on the genitalia. According to Dubos (1952) and Wilson and Miles (1955), it is not clear whether *Borrelia vincentii* is primarily pathogenic or acts as a secondary invader. The role of predisposing factors in reducing the local or general resistance of infected areas while simultaneously increasing the pathogenicity of fusospirochaetal symbiosis was emphasized by Wildführ (1961), who succeeded in provoking abscesses in guinea-pigs only after previously damaging tissues before infection with human fusospirochaetal material. Our observations confirm the opinion that fusospirochaetal organisms show only relative pathogenicity. In the female partner the fusospirochaetal infection was very intense but caused no distinct clinical changes of the vaginal wall. On the contrary, the same infection proved to be pathogenic for the male, because it was associated with tissue damage in the course of the

development of a syphilitic chancre and was favoured by the microaerophilic conditions of the preputial sac. The bacteria cultured from the perforating chancre seem to have played a secondary role in the case described; in the authors' experience such bacteria are very often present in the preputial sac and on the surface of chancres without causing any necrotic changes.

The fact that penicillin therapy did not affect the fusospirochaetal infection of the preputial sac whereas it had a curative effect on the same infection in the vagina can be explained by the different properties of the tissues and the different degrees of penicillin penetration to the infected surfaces.

### Summary

A case of primary chancre was complicated by fusospirochaetosis and led to the perforation of the anterior wall of the prepuce with partial herniation of the glans penis. The patient was infected by a female partner who showed scanty condylomatous lesions of secondary syphilis and an extremely intense fusospirochaetal infection of the vagina without evident vaginitis. The differing degrees of pathogenicity of the fusospirochaetal complex relating to the state of the tissues affected are discussed.

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**Chancres syphilitiques compliqués d'infection fusospirillaire due à la même partenaire**  
**Développement d'une ulcération nécrosante perforant le prépuce**

SOMMAIRE

Un cas de chancre primaire fut compliqué par une infection à fusospires et amena la perforation de la

paroi antérieure du prépuce avec hernie partielle du gland. Le malade avait été infecté par une partenaire qui montrait des lésions condylomateuses modérées de syphilis secondaire et une infection fusospirillaire du vagin extrêmement intense, sans vaginite évidente. On discute les différents degrés de pathogénicité du complexe fusospirillaire en fonction de l'état des tissus atteints.